

# Molecular Biology & Biotechnology (HBSc)

Department of Biological Sciences

Specialist

Major

Minor

See also co-op option

This program first establishes foundational knowledge across the major disciplines of biology, and then combines this knowledge with increasingly molecular, analytical and reflective approaches to the study of Biology. This is a laboratory-rich program that integrates an understanding of chemical and physical processes within our complex biological systems. Broad training in biology and rigorous ancillary training in cognate disciplines, positions graduates to apply to professional and graduate schools or work in a broad range of government regulatory agencies, clinical, or research-focused industries. Co-op terms provide full-time work placements in laboratories, government, health care, or public and private industry. Placements help students both define and refine their career goals while providing invaluable work experience.

## Make the most of your time at UTSC!

We want to help you maximize your university experience, so we've pulled together information and suggestions to get you started, although there are many more! As you review the chart on the inside pages, note that many of the suggestions need not be restricted to the year they are listed. In fact, activities such as joining a student club, engaging with faculty and seeking opportunities to gain experience should occur in each year of your study.

## Check out future career opportunities and skills acquired from completing this program:

### Competencies & Skills

- **RESEARCH:** Experimental design, data analysis using statistics, critical interpretation of literature, advanced experimental techniques in molecular biology
- **COMMUNICATION:** Written, oral, poster, debate, multimedia
- **CAPACITY:** Teamwork skills, meet deadlines and expectations
- **VALUES:** Advocate for Biology & fundamental research

### Careers for Graduates

- Academic Research Scientist
- Clinical Research Assistant
- Laboratory Research Associate (university, hospital, industry)
- Laboratory Technician for Clinical Trials
- Coordinator or Researcher
- Biotechnologist
- Pharmaceuticals (Research, Development, Sales)
- Food Science
- Quality Control & Inspection
- Healthcare Professional

### Further Education

- Graduate Studies
- Public Health
- Genetic Counselling
- Medical School
- Dental School
- Pharmacy
- Optometry
- Physical Therapy
- Occupational Therapy
- Nursing
- Teacher Education
- Clinical Research
- Medical Laboratory Technology
- Radiology Technologist (MRI, CT)



Connect with Alumni at events on **CLNx** and through **Partners in Leadership**, **10,000 Coffees**, **LinkedIn** and more!

For more information go to:  
[uoft.me/alumni-services](http://uoft.me/alumni-services)

**NEED HELP CHOOSING  
YOUR PROGRAM?**

See [uoft.me/choosing](http://uoft.me/choosing)

# Molecular Biology & Biotechnology (HBSc) Specialist Program Pathway

## HOW TO USE THIS PROGRAM PATHWAY

Read through each year; investigate what appeals to you here and in other Program Pathways that apply to you. Note that this Pathway is only a suggestion. **For the most up to date information, please check the UTSC Calendar.**

### YEAR 1 (0 - 3.5 Credits)

### YEAR 2 (4 - 8.5 Credits)

### YEAR 3 (9 - 13.5 Credits)

### YEAR 4 or FINAL YEAR (14 - 20 Credits)

#### CHOOSE YOUR COURSES WISELY

- BIOLOGY: BIOA01H3 & BIOA02H3.
- CHEMISTRY: CHMA10H3 & CHMA11H3.
- MATH: MATA29H3 & MATA35H3 OR MATA30H3 & MATA36H3.
- PHYSICS: PHYA10H3 & PHYA11H3 OR PHYA21H3 & PHYA22H3.
- STATS: STAB22H3 OR PSYB07H3.
- Use Degree Explorer planner and UTSC Calendar to plan your degree.

- 3.0 from Biology Core Courses:
- BIOB10H3, BIOB11H3, BIOB34H3, BIOB38H3, BIOB50H3, BIOB51H3.
- 0.5 from BIOB12H3.
- 1.0 from Organic Chemistry Courses: CHMB41H3, CHMB42H3.
- Check Degree Explorer and contact your Program Advisor.

- 3.5 Credits: BIOB12H3, BIOB13H3, BIOB15H3, BIOB17H3, BIOB20H3, BIOB23H3, BIOB39H3.
- 0.5 credit from: CSCA08H3, CSCA20H3, PSCB57H3.
- 0.5 Credit of Cognate Biology (check UTSC Calendar for details).
- Check Degree Explorer to ensure you are on track with your degree.

- 0.5 Credit in Advanced Molecular Techniques: BIOD21H3.
- 0.5 credit D-level Research-oriented “Cell & Molecular” Course Work from selected courses on Degree Explorer.
- Use Degree Explorer to ensure you are on track to graduate.
- Register your “Intent to Graduate” on ACORN by the deadline.

#### DEVELOP YOUR ACADEMIC & RESEARCH SKILLS

- Attend Biology Students Association (BioSA) BioAID Review Sessions for guidance with writing lab reports.
- Contact the UTSC Library for in-depth research assistance for your assignments; writing support is also available at the CTL Writing Centre.
- Attend your professors’ office hours.

- Seek support from professors and TAs during office hours.
- Check the Research Catalogue on CLNx for possible research opportunities.
- Volunteer in research labs, hospitals, doctors offices, community organizations, foundations.
- Consider doing a directed research course (BIOB98).

- Consider entering the UTSC Library Undergraduate Research Prize contest and/or the Mitacs Globalink Research Award (12-24wks overseas - visit the ISC for details).
- Continue to build your volunteer and work experience.
- Consider directed research courses: BIOB98, BIOB99.

- Attend weekly Biology Seminar Series (Fridays 12pm).
- Take upper-level directed research courses (BIOC99, BIOD98, BIOD95).
- Submit to UTSC’s Journal of Natural Sciences.
- Apply for an Academic Travel Fund through DSL to research, present at a conference, or engage with the international academic community.

#### APPLY THEORY TO PRACTICE

- Attend the Professor-Student Mix & Mingle to meet many of the professors you will encounter as you progress through your degree.
- Start building your Co-Curricular Record (CCR) and search for Experiential Learning and Work-Integrated Learning opportunities on CLNx.

- Take part in Conversation with Biologists, an event where students can interact with leading scientists and learn about their research and career trajectory.
- Consider Work Study jobs or take a directed supervised research course (e.g.BIOB98).

- Continue to build on your skills and knowledge through relevant events offered through your department, student groups, DSL and the AA&CC.

- Participate in Ontario’s Synapse Life Science competition: [www.synapselifescience.com](http://www.synapselifescience.com).

#### BECOME AN ENGAGED CITIZEN (LOCALLY & GLOBALLY)

- Join BioSA and attend their activities and events.
- Join a professional student organization like Future Black Physicians, Health Occupation Students of American UTSC, or MEDLIFE.
- Build confidence and self-esteem through Department of Student Life’s (DSL) LEAD program.
- Develop leadership skills through DSL’s Alternative Reading Week.

- Build your official CCR by getting involved outside the classroom, eg., get involved with the Scarborough Pre-Med Society or the Medical Education Initiative Organization.
- Consider participating in local science outreach through organizations like Let’s Talk Science or consider Global Learning opportunities through ISC.

- Attend Diversity in Medicine Seminar (for future medical students).
- Volunteer with DSL as a First Year Peer Advisor. Take part in other DSL activities, such as Indigenous Experiential Journey trip, or intern with an NGO with the Queen Elizabeth II Diamond Jubilee Scholarship Program.
- Attend a Café Scientifique in your local community.

- Participate in the AA&CC’s Partners in Leadership program to learn and network with an alumni mentor about transitioning to work or further education.
- Consider joining a relevant professional association such as American Society of Cell Biology or the American Society of Microbiology that take student members, and volunteer for their events.

#### PLAN FOR YOUR FUTURE CAREER

- It is important to establish a healthy school/ life balance.
- Volunteer with organizations to explore your interest in industries related to your program of study; check listings on CLNx.
- Attend the UTSC Get Experience Fair in September or register with Scarborough Campus Student Union’s (SCSU) Volunteer Network Program.

- Gain experience by applying for a summer, part-time or Work Study position via CLNx.
- Speak to professors and program advisors so you know what to keep in mind for grad school.
- Explore careers through AA&CC’s Job Shadowing and In The Field programs.
- Apply for DSL’s All-In Leadership program.

- Speak with staff at the AA&CC to plan a potential career path.
- Check CLNx for networking events and employer information sessions to attend.
- Attend UTSC Graduate & Professional School Fair in September.
- Join a conference like TEDxUTSC or International Development Conference to develop professional skills (visit DSL).

- Attend the AA&CC’s Get Hired job search conference in April/May.
- Attend the Jobs for Grads orientation for a job search “crash course”; find job opportunities on CLNx.
- Discuss grad school plans early with staff at the AA&CC and your professors.
- Get your Personal Statement reviewed in the AA&CC.

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## SERVICES AT UTSC THAT SUPPORT YOU:

To learn about resources and departments that can support you, download the UTSC Student Experience app or visit [uoft.me/StARTNow](http://uoft.me/StARTNow)

### Diversity & Inclusion

The University of Toronto Scarborough commits to intentionally foster a welcoming and supportive environment for students, faculty, and staff where diversity is valued, and every member of the community feels a sense of belonging on campus.

[utsc.utoronto.ca/edo/](http://utsc.utoronto.ca/edo/)

### Academic Integrity

The university community supports an environment of academic integrity; these are values that include honesty, trust, fairness, respect and responsibility. Learn about the university's academic rules and how to avoid accidental plagiarism by attending an Academic Integrity Matters (AIM) workshop.

[academicintegrity.utoronto.ca/](http://academicintegrity.utoronto.ca/)

### Healthy Campus

UTSC provides supportive environments, resources and services to empower students to maintain their overall physical and mental health and foster their academic success.

[uoft.me/healthycampus/](http://uoft.me/healthycampus/)

### Co-Curricular Record

The co-curricular record is an official institutional document that recognizes your involvement outside the classroom as a significant part of your U of T experience.

[clnx.utoronto.ca/ccr](http://clnx.utoronto.ca/ccr)

## FUTURE STUDENTS

For admission requirements to UTSC, check out the U of T Scarborough Viewbook or contact:

### Admissions & Student Recruitment

University of Toronto Scarborough  
Room HL104, Main Floor, Highland Hall  
416-287-7529

[admissions@utsc.utoronto.ca](mailto:admissions@utsc.utoronto.ca)

## CURRENT STUDENTS

### Departmental Contact

Jennifer Campbell,  
SW421D, 416-287-7404,  
[jac.campbell@utoronto.ca](mailto:jac.campbell@utoronto.ca)

[utsc.utoronto.ca/biosci](http://utsc.utoronto.ca/biosci)

### Biological Sciences Librarian

Sarah Guay  
[sarah.guay@utoronto.ca](mailto:sarah.guay@utoronto.ca)  
416-287-7497

### Academic Advising & Career Centre

Room AC213 | 416-287-7561

### Department of Student Life

Room SL157 | 416-208-4760

### BioSA - Biology Students Association

[thebiosa.org](http://thebiosa.org)

## DID YOU KNOW...

Check out co-op work term presentations to learn how our students excel in a diverse range of jobs!



## Glossary of acronyms:

AA&CC - Academic Advising & Career Centre

BioSA - Biology Students Association at UTSC

CLNx - Career & Co-Curricular Learning Network

CCR - Co-Curricular Record

CTL - Centre for Teaching & Learning

DSL - Department of Student Life

ISC - International Student Centre

NGO - Non-Governmental Organization

SCSU - Scarborough Campus Students Union

**DISCLAIMER:** Please refer to the calendar for the most current and accurate information on programs and degrees: [utsc.calendar.utoronto.ca](http://utsc.calendar.utoronto.ca)